

Organizational Learning Culture, Transfer Climate and Perceived Innovation in Jordan

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This paper examined the relationship between organizational learning culture, learning transfer climate, and organizational innovation. The objective was to test the ability of learning organization culture to account for variance in learning transfer climate and subsequent organizational innovation, and to examine the role of learning transfer climate as a mediator between learning organization culture and innovation. Results showed that organizational learning culture predicted learning transfer climate, and both these factors accounted for significant variance in organizational innovation

Keywords: Learning Organization, Innovation, Transfer Climate

Technological advancements, dynamic customer demands, increasing globalization, the blurring of organizational boundaries (Arthur & Rousseau, 1996), and increasing competition are all combining to produce organizational environments more turbulent than ever before. Given the uncertain nature of organizational environments it is not surprising that increasing attention in the human resource development (HRD) and organizational development (OD) literature has been paid to learning organizations. A recurring theme in this literature is that the adoption of some all of the features of the learning organization enables organizations to develop more flexible and adaptable systems that improve long-term performance (Guns, 1996; Senge, 1992; Slater & Narver, 1995).

However, the literature addressing the learning organization is largely descriptive and conceptual in nature. For example, many authors have described why a learning organization should work, but there are few specific descriptions about the mechanics of how the learning organization as a strategy works to improve performance (Kaiser, 2000). In an effort to bridge this gap in the learning organization literature, Kaiser and Holton (1998) have identified a number of parallels between the characteristics and recommended procedures in the learning organization literature and the innovation literature. They note that the learning organization and innovation literatures both focus on the facilitating role of the same organizational variables including culture, climate, leadership, management practices, information acquisition, retrieval, and sharing, and organizational structures, systems and environment. Both literatures also focus on strategies that will enhance the adaptability and flexibility of organizations in ways that improve long-term performance. The convergence on a common outcome together with the similarity in influencing variables has been interpreted to suggest that innovation may be a close relative of organizational learning (Kiernan, 1993) and a relationship may exist between the two.

It has been suggested that every organization is to some degree a learning organization but are differentiated by the degree to which they learn better, faster, or more completely (Mai, 1996). This could be revealed through outcomes like innovation and is likely to be facilitated and supported by climates or systems that enhance and support learning application. In other words, the culture of an organizational learning system is all about developing and applying intellectual capital. Learning and the factors that support the transfer (application) of learning are part of that organizational culture that creates and shares knowledge. The purpose of this paper is report on an initial exploratory examination of the relationship between organizational learning culture, learning transfer climate and organizational innovation. The objective was to empirically examine the ability of learning organization culture to account for variance in learning transfer climate and subsequent organizational innovation. Our analysis also seeks to examine the role of learning transfer climate as a mediator between learning organization culture and innovation. The research model shown in Figure 1 depicts a partially mediated model that views learning organization culture as an antecedent that influences learning transfer climate that, in turn, affects organizational innovation.

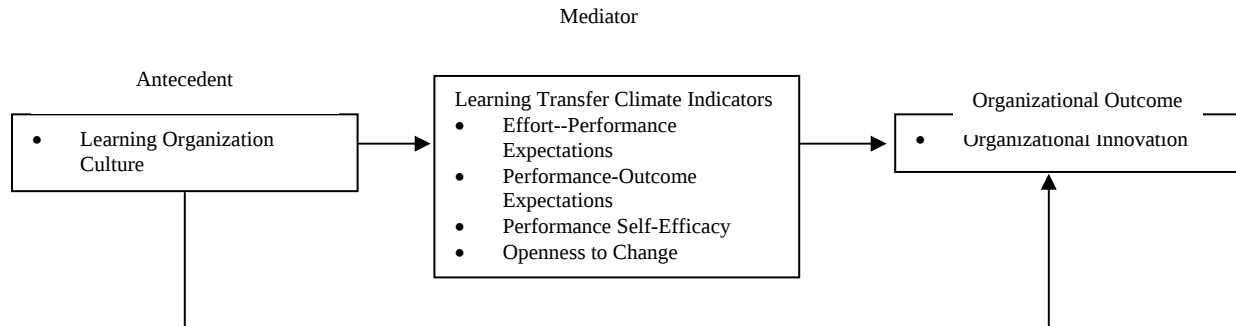
The Research Model

Organizational Culture and Innovation

One of the outcomes of interest in this study is organizational innovation. For our purposes, innovation will be equated with the adoption and application of new knowledge and practice. This conceptualization is consistent with that of other researchers (Agrell & Gustafson, 1994; Burningham & West, 1995; West & Anderson, 1996) and

emphasizes the importance not only of learning but also the application of that learning. The literature on organizational innovation focuses heavily on the role of culture as a facilitator largely because of the role that

Figure 1. Research Model



organizational culture plays in effective change initiatives (Bluedorn & Lundgren, 1993). In fact, Kotter and Heskett (1992) have identified an adaptive culture – or a culture that fosters and nurtures innovation - as the optimal culture for organizations pursuing long-term superior performance in dynamic environments.

Organizational culture refers to the “shared meanings and manifestations” of organizational behavior (Kopelman, Brief, & Guzzo, 1990, p. 284) and, as such, emphasizes the common beliefs, values and assumptions of organizational members. The learning organization literature also emphasizes that role of organizational culture to the extent it indicates that a consensus has developed among organization members about the value of learning and use of new learning to pursue organizational goals and objectives. In discussing organizational learning, for example, Watkins and Marsick (1993) suggest that a culture that supports the acquisition of information, the distribution and sharing of learning, and provides rewards and recognition for learning is essential. Marquardt (1996) emphasizes the importance of an organizational culture that facilitates and promotes continuous learning and improvement.

An organizational learning culture becomes important in the consideration of innovation to the extent that the culture enables an organization to anticipate and adapt to the dynamics of a changing environment. For example, Bass and Avolio (1990) emphasize the value of innovative and adaptive cultures in their distinction between transformational and transactional cultures. The former support change and innovation while the latter tend toward the maintenance of the status quo. Both innovation and organizational learning are seen as emphasizing the free exchange of information and ideas in ways that facilitate learning and its application. Both focus heavily on the role of culture as a facilitator of creativity. The common threads that emerge from this and other literature underscore the importance of culture in promoting and supporting inquiry, risk-taking, and experimentation.

Organizational Climate and the Culture-Climate Connection

Organizational climate as a general construct can be defined as a psychologically meaningful description of the work environment (James & Jones, 1976; Jones & James, 1979) or, similarly, a individual psychological state affected by organizational conditions like culture, structure, and managerial behavior (Burke & Litwin, 1992). Thus organizational climate is not the work environment per se but the way in which people respond to it; it is the ‘perceptual medium’ (Kopelman et al., 1990) through which the work environment affects job-related attitudes and behaviors. Climate has thus been described as a ‘sense of imperative’ that arises from a person’s perceptions of his or her work environment, one that influences how he or she responds (Schneider & Rentsch, 1988). This sense of imperative can be reflected, for example, in perceptions of task-related support (e.g., feedback) for learning transfer or in the cognitive and affective states that ensue from these perceptions.

Organizational culture differs from climate to the extent that culture is based on beliefs that are shared organization-wide while climate is based on what an individual senses in and about the organizational environment (Reichers & Schneider, 1990). This has led to the notion that climate is a surface manifestation of culture to the degree that different beliefs, meanings, and symbols (i.e., culture) give rise to different individual expectations and interpretations of the organizational environment (Denison, 1996). This view is consistent with considerable research into organizational climate that recognizes it as useful multidimensional construct that can be applied to a wide variety of organizational and perceptual variables reflective of organizational-individual interactions (Glick, 1985; Schneider, 1980).

Our research model suggests that organizational learning culture gives rise to task support and cognitive and affective elements indicative of supportive learning transfer climates that, in turn, influence organizational innovation. Our rationale for this sequence is based on several factors. First, these hypothesized relationships are generally consistent with Kopelman et al.'s (1990) model of climate, culture and productivity. Second, to the extent that climate is a surface manifestation of culture it is possible to draw on Schneider's (1987) attraction-selection-attrition model of organizational development and speculate that an organizational learning culture may, over time, lead to the development of transfer climates conducive to learning and its application. Finally, there is evidence that organizational climates can have an effect on innovation (Abbey & Dickson, 1983; Anderson and West, 1998). More specifically, the research model suggests the following hypotheses:

H1: After controlling for organizational sector and industry type, learning organization culture will explain a significant amount of variance in innovation

H2: After controlling for organizational sector and industry type, the block of transfer climate variables will explain a significant amount of variance in innovation

H2: Regression results will support the inference of a partially mediated model in which the block of transfer climate indicator variables partially mediate the relationship between learning organization culture and innovation

Methodology

Population and Sample

Data for this study were collected from 450 subjects employed by 28 different organizations in Jordan. Because of limited access to subjects in Jordan, both purposive sampling and convenient sampling (Ary, Jacob, & Razavieh, 1996) were used. Approximately 38% (n = 172) of the respondents were from public sector organizations and about 62% (n = 278) were from the private sector. A little over 25% of the respondents were from public sector educational institutions with the remainder fairly evenly divided between public/governmental organizations and private sector manufacturing, high tech, banking, insurance, retail, and service organizations. A slight majority of the sample was male (54%). Respondents were predominantly 30 or more years old (71.4%) and held a bachelor's degree or higher (89.1%). Over 60% of the respondents had four or more years of work experience.

Instrumentation

Since all the scales used in this study were developed in English, a rigorous English-to-Arabic translation process was used that included an iterative process of forward translation, backward translation, assessment for clarity and correctness, and subjective and objective evaluation. The goal of the translation and various evaluation procedures was to produce an Arabic version of the items that were equivalent *in meaning* to the original English versions. This last point is important because our objective was an *equivalent translation* not an identical word-by-word translation. Equivalent translations emphasize functional equivalence or the equivalence of meaning of the survey items between the original and translated instruments. Functional equivalence helps to ensure that the measures work in the new target culture as well as they did in the original culture because the translation is based on achieving equivalence in meaning rather than just the form of the sentence or word-by-word translations

Exploratory (common) factor analysis was used to identify the latent construct structure of the survey items and to provide some evidence of construct validity and cross-cultural equivalence. Common factor analysis is considered more appropriate than principal component analysis when the objective is identification of latent structures (Nunnally & Bernstein 1994). Oblique rotation was employed because of its suitability for latent variable investigation when latent variables may or may not be orthogonal (Hair, Anderson, Tatham, & Black, 1998). The initial criterion used to determine the number of factors to retain was an eigenvalue greater than or equal to one. In the analysis (a) factor loadings reflected interpretable simple structures; (b) only items with loading .40 or higher were included in the scales; and (c) average item loading values were greater than .50 on major factors and less than .15 on other factors for all scales.

A five-item scale was used to measure perceived organizational innovation. Scale items were drawn from an assessment tool entitled Assessing Strategic Leverage for the Learning Organization (ASLLO) (Gephart, Marsick, Holton, & Redding, 1996). This scale was designed to measure the perceived ability of an organization to adopt or create new ideas and implement these ideas in the development of new and better products, services, and work processes and procedures (Holton & Kaiser, 1997).

Items for the three scales used to measure organizational learning culture were also drawn from the ASLLO. The knowledge indeterminacy scale was a four-item scale designed to measure the perceived belief that knowledge in organizations is not fixed and that anyone can be a source of learning and knowledge. The learning latitude scale was a four-item scale designed to measure the belief that individuals are free to be independent thinkers and are able

to freely promote and try new ideas. The organizational unity scale was a five-item scale measuring the belief that all organizational members share a common goal and are all working for the benefit of the organization and its stakeholders. These three scales were summed to yield a single score for organizational learning culture.

The learning transfer climate measures were drawn from the Learning Transfer Systems Inventory (LTSI) developed by Holton and Bates (2002). The LTSI is a diagnostic tool used to assess the factors that influence learning transfer and to assess transfer systems in organizations. It is an 89-item instrument with two sections: the first section contains training-specific constructs that reference a specific training program. This section includes 63 items representing 11 constructs. The second section of the LTSI contains 26 items, measuring five constructs that reference training-in-general in the respondent's organization.

Because we were concerned with the learning transfer climate in general (as opposed to that generated from a specific training program) the training-in-general measures were used in this study as an indicator of learning transfer climate. The training-in-general measures consist of five scales that reflect perceived task support elements and individual cognitive states that, taken together, comprise a psychologically meaningful 'sense of imperative' regarding learning and its application. The two scales reflecting task support elements included performance coaching (six items) and openness to change (four items). Performance coaching measures the extent to which individuals perceive they receive constructive input, assistance, and feedback from people in their work environment when applying new knowledge or trying new ideas to improve work performance. Openness to change measures an individual's perceptions about his or her work group's resistance to change, willingness to invest energy to change, and the degree of support provided when trying to use new learning to improve work performance. The three measures reflecting individual cognitive states included performance self-efficacy (PSE), transfer effort-performance expectations (TEPE), and performance-outcome expectations (POE). Performance self-efficacy (four items) assessed the extent to which individuals feel confident and self-assured about applying new learning, ideas, and abilities in their jobs, and can overcome obstacles that hinder the use of new learning. Transfer effort-performance expectations (four items) assessed the extent to which individual believe that applying new learning will improve performance. Performance-outcomes expectations (three items) measured the extent that individuals believe the application of new learning will lead to recognition or rewards they value. All scales used a Likert-type scale ranging from 1 = strongly disagree to 5 = strongly agree.

Data Collection

The survey instrument was administered in Jordan to employees at varying time lengths following an episode of organizational training. Time varied from directly after training to six months after training. When distributed at the end of the training program, either the researchers or the administrator of the training distributed and collected the instruments. In the other cases the instruments were distributed to trainees through the human resources personnel and then returned to the researchers.

Data Analysis

Bivariate correlations were calculated to examine the direction and magnitude of inter-variable associations. Hierarchical regression analysis was used to determine whether the mediated model provided a reasonable description of the relations among variables. A mediator has been described as a variable "that accounts for the relation between the predictor and the criterion" (Baron & Kenny, 1986, p. 1176). James and Brett (1984) describe two types of mediators, complete and partial. Complete mediation occurs when the mediating variable "transmits all of the influence of the antecedent x to a consequence y , which implies that x and y are indirectly related" (p. 310) and that the relationship between x and y disappears when the mediator z is controlled for. Thus the independent variable significantly affects the mediator; the mediator significantly affects the dependent variable; and controlling for the mediator produces a nonsignificant relationship between the independent and dependent variables. Partial mediation occurs when the independent variable has a direct effect on the dependent variable as well as an indirect effect through the mediator (James & Brett, 1984). Partial mediation is suggested when controlling for the mediator does not attenuate the significant relationship between the independent and dependent variables.

Our research model suggests an partially mediated $x \rightarrow z \rightarrow y$ linkage in which organizational learning culture (x) directly influences innovation (y) and the block of transfer climate variables (z) mediates the relationship between organizational learning culture and innovation. To infer support for partial or completely mediated models using hierarchical regression several statistical conditions must be met (Baron & Kenny, 1986). Specifically, three regression analyses need to be run to determine if learning transfer climate functions as a mediator. A fourth regression analysis provides information about the nature of the mediated relationship (complete or partial mediation). In the first analysis, the predictor block (organizational learning culture) is regressed on the innovation ($x \rightarrow y$). Second, the mediator variable (the learning transfer climate block) is regressed on innovation ($z \rightarrow y$). Third, the predictor block is regressed on the mediator ($x \rightarrow z$). To infer support for a mediated relationship each of

these regression equations must be significant. Finally, to obtain information about the nature of the mediation (partial or complete) a hierarchical regression analysis is performed in which learning transfer climate (the mediator) is regressed on the outcome measure ($z \rightarrow y$) and organizational learning culture (x) is added as a second step. If adding x contributes significantly to the variance explained by the regression equation and $z \rightarrow y$ remains significant this suggests the presence of partially mediated relationship (i.e., one in which there are both direct and mediated effects). If adding x does not yield a significant R^2 increment, then there is evidence of complete mediation. Finally, to control for the variation in innovation across organizational types and sectors, these variables (organizational sector [public versus private] and industry type [high-tech, manufacturing, service]) were dummy coded and entered as control variables in each regression model.

Results

Descriptive Statistics

Analysis of regression diagnostics following a process described by Bates, Holton, & Burnett (1999) did not reveal any serious violations of regression assumptions, multicollinearity, or the presence of influential observations. The means, standard deviations, intercorrelations, and reliability estimates for all measures are shown in Table 1. Examination of the intercorrelations suggests several noteworthy patterns. First, the one-tailed correlations among variables were generally low to moderate suggesting the measures used in this study were assessing different constructs. Second, organizational learning culture showed significant correlations with all variables except openness to change. Innovation was correlated with all variables except openness to change and performance self-efficacy. Third, all of the associations were in the expected direction except for openness to change. Contrary to expectations, openness to change was negatively correlated with performance outcome expectations, effort performance-outcome expectations, performance self-efficacy, and performance feedback. This was somewhat surprising to the extent it is reasonable to expect that transfer climates that reflect positive reward orientations (i.e., strong values for performance-related expectations and efficacy beliefs) and relatively strong task support for transfer (performance coaching) would also tend to reflect a willingness to change. This finding suggests that Jordanian employees in organizations with learning-oriented cultures and supportive transfer climates perceived relatively little openness to change (despite rating the level of innovation relatively high).

Table 1. *Scale Means, Standard Deviations, Correlations and Coefficient Alphas*

Variable	N	%	M	SD	1	2	3	4	5	6	7
1Innovation	443	.79	4.75	.77	--						
2Org Lrn Cult	439	.84	14.06	1.99	.52*	--					
3Open Change	448	.54	2.23	.40	-.01	-.04	--				
4POE	447	.86	3.54	.84	.17*	.23*	-.10*	--			
5TEPE	443	.79	3.90	.63	.21*	.21*	-.15*	.41*	--		
6PSE	449	.80	3.90	.64	.09	.19*	-.26*	.30*	.54*	--	
7Perf Fdbk	449	.80	3.47	.66	.23*	.22*	-.20*	.41*	.33*	.33*	--

The control variables Sector (public vs. private) and Industry type (e.g., high-tech, manufacturing, and service industry sectors) were dummy coded and therefore are not included in this table.

* $p \leq .05$

POE (performance-outcomes expectations), TEPE (transfer effort-performance expectations), PSE (performance self-efficacy)

Mediated Model Evaluation

The steps and results of the regression tests for mediation are shown in Table 2. Results from the test of Model 1 show that organizational learning culture was a significant predictor of organizational innovation ($R^2 = .28$, $p \leq .05$). Results from the test of Model 2 in which innovation is the dependent showed that, after accounting for the variance explained by the control variables ($R^2 = .04$, $p \leq .05$), the learning transfer climate indicators explained a significant amount of variance in perceived organizational innovation ($R^2 = .09$, $p \leq .05$). The Model 3 test involved multiple dependent variables (the learning transfer climate indicators) and therefore required the use of multivariate analyses of variance (Manova). In this analysis, after controlling for organizational task and sector, the main effect for organizational learning culture was significant ($F = 9.06$, $p \leq .05$). The results from the analysis of these three models support the inference that learning transfer climate as measured by the indicators used in this study mediated the relationship between the organizational learning culture and perceived organizational innovation.

To obtain information about the nature of the mediation, a fourth regression analysis was performed. This model required the use of hierarchical regression in which the learning transfer climate variables were regressed on innovation with organizational learning culture entered as a second step. Results showed that, after entering the control variables, learning transfer climate was a significant predictor of innovation ($R^2 = .09$, $p \# .05$, and the addition of organizational learning culture significantly increased the variance ($R^2_{\text{change}} = .18$, $p \# .05$). These findings support the inference of a partially mediated model in which organizational learning culture has a direct influence innovation and influences learning transfer climate that in turn influences innovation.

Table 2. *Regression Analyses Testing for Mediation*

Regression Models	Variables	R^2	F_{model}	df	R^2_{change}
Model 1	Control Variables ⁺	.04	9.49*	2,429	--
	$x^{\dagger} \rightarrow y^{\dagger\dagger}$	.28	53.34*	3,428	.24*
Model 2	Control Variables ⁺	.04	8.32*	2,429	--
	$z^{\dagger\dagger} \rightarrow y$	.13	8.92*	7,424	.09*
Model 3 ⁺⁺	Control Variables ⁺	.03	2.59	5,420	--
	$x \rightarrow z$	.10	9.06*	5,420	.07*
Model 4	Control Variables ⁺	.04	8.54*	2,419	--
	$z \rightarrow y$	.13	9.09*	7,414	.09*
	$z \rightarrow y + x$	.31	23.24*	8,413	.18*

^K Sector & Organizational Task were entered as controls in each of these regression models.

⁺ x = Organizational Learning Culture as the predictor

⁺⁺ y = Innovation as the dependent variable

⁺⁺⁺ z = Learning Transfer Climate indicators as the mediator variables

⁺⁺ Because of the multiple dependent variables (the learning transfer climate variables) in Model 3 a Manova procedure was used in which the predictor variable (organizational learning culture) was specified as a covariate.

* $p \# .05$

Summary and Discussion

This study took the perspective that a culture of organizational learning is all about developing and applying intellectual capital in ways that make organizations more productive. More specifically, we suggested that learning and its transfer (application) are principle processes in organizational innovation. We speculated that learning initiatives (e.g., training) and the factors that support the transfer of learning are part of an organizational learning culture that values the creation and sharing of knowledge. This paper reported on an initial exploratory examination of the relationship between organizational learning culture, learning transfer climate, and organizational innovation. The objective was to empirically examine the ability of learning organization culture to account for variance in learning transfer climate and subsequent organizational innovation. Our analysis also sought to examine the role of learning transfer climate as a mediator between learning organization culture and innovation. The results supported the hypothesized partially mediated model. Findings indicated that organizational learning culture can predict learning transfer climates, and that both of these factors can account for significant variance in the perceived innovative capacity of an organization. These findings are consistent with the Kopelman et al. (1990) model of culture, climate and productivity in organizations and suggest that organizational learning cultures may, through human resource and other practices, create learning climates and individual cognitive and affective states that enhance and facilitate innovative double-loop learning in organizations.

Limitations

There are several limitations in this study that deserve mention. First, this study relied on self-report and survey data. Although the correlation matrix indicated a relatively wide range of correlations, most generally consistent with expectations, common method variance could have inflated the correlations or affected the observed relationships in other unknown ways. On the other hand, some researchers have suggested that method bias may not

be as serious a problem as has been assumed (Spector, 1987) and that the seriousness of the bias depends on the research question. For instance, when perceptions are the object of empirical interest, method bias may not be a serious issue (Clark, Dobbins, & Ladd, 1993). Although we do not suspect that method bias significantly affected the pattern of results in this study the use of additional data collection strategies or outcome measures would have strengthened the validity of our findings. Second, the cross-sectional nature of the data as well as the analytical technique employed means that the causal relationships between variables in this study can only be inferred. Cultivating more valid insights about the causal antecedents and effects of learning transfer climate, organizational learning culture, and innovation would benefit from future research employing more rigorous research designs (e.g., longitudinal designs) and analytic techniques more suited to testing causal hypotheses (e.g., structural equation modeling). For example, because learning and its application to performance improvement or innovation is not a one-shot kind of experience (it typically requires some trial-and-error and adaptation) it is possible that the learning transfer climate variables would show a stronger relationship with innovation when assessed from a longer-term perspective.

How This Research Contributes to HRD

The results of this study are important to HRD for several reasons. First, As Kaiser (2000) has noted, the organizational learning literature is “startling unclear” about how learning organization strategies are improve critical organizational outcomes. This research provides an initial glimpse of what may be a valuable linkage between organizational learning culture, learning transfer climate, and innovation. Second, the study links three constructs that have generated a lot of interest in the HRD and organizational behavior literature. We have in effect expanded the nomothetic networks of organizational learning, innovation, and transfer climate and pointed to potentially important relationships between these constructs. Finally, there has been little if any research that has examined variables related to organizational learning, learning transfer, or innovation variables in Arabic cultures such as that found in Jordan. This paper therefore represents an important first step in this kind of cross-cultural research by showing that organizational learning culture, perceived innovation, and several transfer climate constructs can be fruitfully examined in cultures quite different from that in the U.S.

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